Patent claims

1. A tactile sensor element (1) comprising
a first pressure transfer layer (9) and a second pressure transfer layer (10),
an elastomeric body (2) arranged between the first and second pressure transfer layers, the body (2) having a first surface (3) and a second surface (4) opposed to each other, the first and second surfaces having corrugations (5, 6) to allow displacement of elastomeric body material in a predetermined direction perpendicular to the corrugations when exposed to a contact pressure on at least one of the surfaces (3, 4),
a first electrode (7) arranged on the first surface (3) and a second electrode (8) arranged on the second surface (4) , the first and the second electrodes being connectable to external means (12) for determining the capacitance of a capacitor formed by the elastomeric body (2) and the electrodes (7, 8),
characterized in that at least one pressure transfer layer (9, 10) has at least one portion (20 –22) of increased thickness.

2. A tactile sensor element according to claim 1, characterized in that at least one pressure transfer layer (9, 10) has a central portion (20) of increased thickness and, on each side of the central portion in the predetermined direction of extension of the body, an end portion (21, 22) of decreased thickness.

3. A tactile sensor element according to claim 1 or 2, characterized in that the electrode (7, 8) on at least one of the surfaces (3, 4) comprise a first electrode portion (25, 27) adjacent to the central portion (20) of the pressure transfer layer (9, 10) and second electrode portions (26, 28) adjacent to the end portions (21, 22) of the pressure transfer layer, the first and second electrode portions being isolated from each other.

4. A tactile sensor element according claims 3, characterized in that the surface area of the first electrode portion (25, 27) is substantially equal to the total surface area of the second electrode portions (26, 28).

5. A tactile sensor element according to any of claims 1 to 4, characterized in that lateral means (51) are provided on two opposite sides of the sensor element for preventing overall dimensional change of the sensor element in the predetermined direction.

6. A tactile sensor element according to any of claim 1 - 5, characterized in that the thickness of the pressure transfer layer (9, 10) is substantially equal to the thickness of the elastomeric body (2).

7. A tactile sensor element according to any of claim 1 - 6, characterized in that the elastomeric body (2) and the pressure transfer layers (9, 10) have similar elastomeric properties.

8. A tactile sensor array (40) comprising a plurality of sensor elements (1) according to any of the above claims, characterized in that the sensor elements are arranged in a row and column configuration for the determination of local pressure variations over the surface area of the sensor array, and wherein the plurality of sensor elements (1) being integrally formed in a common elastomeric body member (42).

9. A tactile sensor array according to claim 8, characterized in that each row of sensor elements (1) comprises an elongated common elastomeric body member (42), the body member constituting a continuous sequence of sensor element bodies (2).

10. A tactile sensor array according to claim 9, characterized in that the elastomeric body member (42) has corrugations (5, 6) extending perpendicular

to the longitudinal direction of the elongated body member (42), and wherein adjacent body members are spaced from each other.